STATE OF NORTH DAKOTA

CAPACITY DEVELOPMENT REPORT TO THE GOVERNOR

Prepared by:
Division of Municipal Facilities
Environmental Health Section
North Dakota Department of Health
September 2011

TABLE OF CONTENTS

REPORT PURPOSE

The North Dakota Department of Health (the Department) administers the federal Safe Drinking Water Act (SDWA) in North Dakota. The Department also administers a Drinking Water State Revolving Loan Fund (DWSRF) program, which was authorized by the 1996 Amendments to the SDWA. Through the DWRSF, low-interest loans are provided to community water systems in the state to upgrade existing or construct new drinking water facilities.

The SDWA, section 1420 (c)(3), requires that no later than two years after the date on which a State first adopts a capacity development strategy, and every three years thereafter, the Department is required to report to the Governor on the effectiveness of its capacity development program. Capacity refers to a water system's technical, financial and managerial capability to maintain SDWA compliance. Failure by the Department to provide such a report will result in a twenty (20%) withhold of subsequent fiscal year federal grant funds for the DWRSF program.

INTRODUCTION

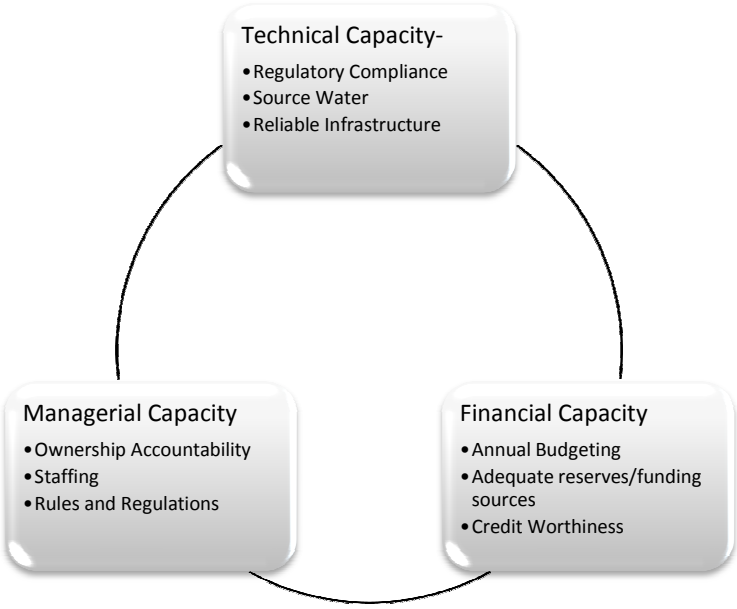
In the 1996 Amendments to the SDWA, it was conveyed that a capable water system is better positioned to consistently comply with applicable standards and provide safe and reliable water service. It was recognized by congress that protection of the public's water supply requires ongoing compliance with the operation and maintenance of public water system facilities. The term "capacity development" was used to describe capability. The fundamentals of capacity are: (1) to protect public health by ensuring consistent compliance with drinking water standards; (2) to enhance performance beyond that of compliance through measures that bring about efficiency, effectiveness and service excellence; and (3) to promote continuous improvement through monitoring, assessment and strategic planning.

Capacity has three components: technical, managerial and financial as shown in Figure 1. Adequate capacity in all three areas is necessary for a system to have "capacity".

Technical capacity refers to the physical infrastructure of the water system, including but not limited to the adequacy of source water, infrastructure adequacy (source treatment, storage and distribution), and the ability of system personnel to implement the proper technical knowledge. *Managerial capacity* includes ownership accountability, staffing and organization, and effective external linkages. *Financial capacity* refers to the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness and fiscal management and controls.

Section 1420 of the SDWA requires that states develop and implement a strategy to assist public water systems in acquiring and maintaining technical, managerial and financial capacity.

Figure 1
Water System Capacity



Objectives of North Dakota's Capacity Development Strategy

All new North Dakota community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) are required to demonstrate technical, managerial, and financial capability (capacity) prior to commencing operation. CWSs are public water systems (PWSs) that serve year-round residents such as municipalities, rural water systems, subdivisions, and mobile home parks. NTNCWSs are PWSs that serve the same people for a minimum of six months per year (e.g., rural schools, power plants, and industrial parks). New system guidelines are outlined in the *New Water System Capacity Assessment Manual* and the *New System Capacity Assurance Plan*. North Dakota's new system strategy was approved by the U.S. Environmental Protection Agency (EPA) in September 1999. The department was granted the authority to ensure new system capacity under North Dakota Century Code (NDCC) Chapter 61-28.1, Safe Drinking Water Act, by the 55th Legislative Assembly in 1997. The department provided to EPA the North Dakota's Attorney General's written opinion certifying the department's authority to ensure all new CWSs/NTNCWSs commencing operation after October 1, 1999, demonstrate capacity with respect to SDWA regulations or regulations likely to be in effect on the date operation commences.

Pursuant to NDCC 61-28.1, the department adopted North Dakota Administrative Code (NDAC) Article 33-17, Public Water Supply Systems. These existing regulations, originally adopted in 1977 and last amended in 2011, provide a means to implement a capacity assurance program. Based on such authority, proposed new PWSs must provide a number of assurances as part of the plans and specification approval process.

The department requires that (1) plans and specifications be submitted for review and approval prior to construction and (2) operation not commence until a letter of approval is issued. These primary control points allow the department to ensure the capacity of new systems prior to their development. To obtain a letter of approval, the PWS must provide:

- A new water system application
- An operation plan that includes a technical, managerial, and financial plan
- Plans and specifications
- A construction schedule
- Sample results for each water source
- A notice of completion
- An operation and maintenance manual (if deemed necessary by the department)

The major objectives of North Dakota's Capacity Development Strategy are:

1. Prioritization of systems most in need.
2. Assessment of system capacity.
3. Developing programs to assist systems with SDWA compliance.
4. Encouraging partnering between systems.
5. Measuring success.

ACCOMPLISHMENTS

Several tools are being utilized to implement the capacity development strategy. These tools, which are discussed below, include tracking new water systems/new operators, technical assistance, existing systems program, funding, and operator training.

Tracking New Water Systems/New Operators

The Division of Municipal Facilities (DMF) tracks new water systems through individuals contacting the DMF, local/district health units, existing PWSs, financial assistance contracts, engineering firms, and other state agencies. The department has determined that the present method of identifying and contacting proposed systems works and will continue using it.

The number of new CWSs/NTNCWSs being added to the North Dakota PWS inventory has been increasing with additions mainly on the western side of the state due to the large increase in oil activity. New developments (subdivisions, trailer courts, industries, etc.) generally occur adjacent to or within the service areas of existing PWSs and are typically consolidated with or provided bulk water service by the existing PWS. The department expects this new trend of increasing systems to continue. Twenty-five requests for new water system capacity information have been received since July 1, 2008.

Technical Assistance

Helping water systems develop and maintain capacity is the backbone of the Capacity Strategy. Many water systems throughout North Dakota have increased their capacity through the technical assistance program. This program provides "targeted" assistance by focusing on

specific issues or problem areas. Some of the highlights of technical assistance are described below.

Financial and Managerial Planning

Financial and Managerial training is a collaborative effort between Midwest Assistance Program, North Dakota Department of Health and Public Finance Authority. The intent of the Financial and Managerial training is to provide participants with a solid understanding of the key components of financial planning including the following.

- Elements of an effective budget
- Capital improvement planning and financing
- Rate structure options for the small water system
- How to calculate capacity fees
- Process for raising fees
- Asset management
- Demonstration of financial tools

Water Rate Studies

Analysis of the data collected during capacity evaluation revealed many water systems are weak in financial capacity. Assistance has been provided to help water systems evaluate their budgets and water rates. Each utility has unique needs whether declining population, operating deficit, eroding infrastructure, limited funding, or complex SDWA requirements. Since many small water systems are facing rate deficiencies the technical assistance provider identifies options for rate increases or reduction of expenses or rate restructuring. The water system is provided with various methods for calculating base rate, capacity fees, and connection fees. Assistance is also provided in presenting the information supporting a rate increase to customers at public hearings and the governing board.

Existing Systems Program

The *North Dakota Existing Water System Capacity Strategy* details the steps taken to implement and maintain a capacity program aimed at helping all North Dakota PWSs acquire and maintain capacity. The North Dakota strategy was approved by EPA and implemented prior to August 1, 2000. The SDWA required states to consider each of five programmatic elements in its capacity development. The department included all five elements in its existing water system capacity document and believes that together they constitute an effective strategy.

- Element A: Methods or criteria used to prioritize systems in need of technical, managerial, and financial assistance.
- Element B: The factors encouraging or impairing capacity development.
- Element C: Description of how states will use the authority and resources of the SDWA.
- Element D: Establish a baseline and measure improvements.
- Element E: Identify stakeholders.

Factors encouraging and impairing capacity remain the same. Enhancements include federal funding, DMF administration, state primacy, and stakeholder involvement.

The DMF uses pertinent existing programs as a baseline to identify PWSs that lack capacity and are in danger of becoming a compliance problem. The point system developed for the existing capacity strategy utilizes SDWA compliance data, operator certification deficiencies, inspection reports, DWSRF financial audits, and laboratory past-due accounts to evaluate capacity. PWSs accumulating 10 points or more and having the greatest impact on public health are prioritized beginning with the highest number. PWSs with a history of significant noncompliance (SNC) automatically receive 10 points, making them candidates for immediate assistance.

Funding

The North Dakota DWSRF is jointly managed by the North Dakota Department of Health (Health Department) and the Public Finance Authority (PFA). The Health Department receives the federal capitalization grants, and is responsible for the technical and overall administrative functions of the program. The PFA, under agreement with the Health Department, serves as the financial agent, and is responsible for the preparation and issuance of bonds, reviewing the financial capability of loan applicants, investing program proceeds, handling loan repayments, and other necessary financial functions.

The grant funds and bond proceeds are deposited into the DWSRF and made available as low-interest loans for eligible PWS projects. As systems pay back their loans, the interest and principal payments, along with available investment earnings, are used to retire the state bonds and as a source of funds for additional projects. This revolving feature of the DWSRF program will ensure that North Dakota has funds for needed projects into the future.

The present loan interest rate for eligible PWSs that qualify for tax-exempt financing is 2.5 percent. The present loan interest rate for eligible PWSs that do not qualify for tax-exempt financing is 4.0 percent. All loans are subject to a 0.5% administration fee. The maximum repayment period for DWSRF loans under the SDWA is 20 years.

Operator Training and Certification

The Department continues to contract with the North Dakota State Plumbing Board, Local/District Health Units, and technical assistance providers such as the NDRWSA and Midwest Assistance Program (MAP). Contracts with the State Plumbing Board and Health Units provide continued support to the public water supply and inspection programs. Contracts with the technical assistance providers for financial management reports and renewed projects for capacity development, sanitary survey follow-up visits, operator certification and compliance monitoring in accordance with Stage 2 Disinfectants and Disinfection By Products Rule. Also the NDRWSA and NDAWWA will continue to provide additional training events

Operators attended two annual conferences, four water treatment and distribution workshops, two wastewater treatment and collection training sessions, a field pH certification workshop, 2 AWWA workshops on Stage 2 DBP and Waterborne Outbreaks, and 7 NDRWSA training

sessions. Six hundred thirty-eight operators attended the NDRWSA sessions which included: operator certification, exam training, water system training, financial training, distribution training, sewer system relining, waterworks 101, quality on tap and the Rural Water Expo.

CHALLENGES

Despite the maturing of North Dakota's Capacity Development Program, there are still some significant areas of weakness in rural North Dakota. These areas of weakness tend to be those in the managerial and financial capacity.

Managerial capacity directly affected by the individual water system operators, managers, and board members. North Dakota has some very small water systems and often times there is not even one full time employee. Finding and retaining qualified and experienced water system operators, managers, and board members is limited in rural areas and may be attributed to the following causes:

1. Aging Workforce. There have been several published reports regarding the aging workforce in the water industry and the lack of qualified professionals to succeed those retiring.

2. Salaries. Due to the competition in the marketplace, rural water systems typically do not offer enough money to attract experienced operators and managers. They will usually find someone less qualified that will work for a lower wage.

3. Declining Pool of New Professionals. Educational programs that promote the water industry and adequately prepare new professionals seem to be lacking in North Dakota. Many operators and managers learn on the job and start at the entry level with little or no formal education or preparation. Some water systems are functioning without a certified water operator or continue to use a contract operator that provides minimal local service.

4. Board Members without Utility Backgrounds. In rural communities, water systems are fortunate to find enough individuals to serve on a board. Many board members lack a fundamental understanding of water system operations, finance and management.

The experience, training and background of water system managers, operators and board members are directly linked to the capacity of a water system and are likely to be the greatest single factor. Water systems that are led by a capable, experienced manager, who are supported by a competent and progressive governing board, tend to have high capacity in all areas.

FUTURE RECOMMENDATIONS

As the program grows and evolves, there have been many lessons learned which have resulted in a program that continues to improve and better serve the needs of North Dakota's water systems.

While all systems are unique, the vast majority of water systems in North Dakota still need assistance with managerial and financial principles and planning. Full cost pricing is required in order for a water system to fully function, as it should. Operation and maintenance activities, such as valve exercising, are also important to extending the life of the infrastructure.

Proper management of infrastructure assets is critical. Although the concept of managing assets is relatively simple, many water utilities don't understand how to design and implement an effective asset management program. Managing a utility effectively requires a proactive approach to managing infrastructure assets. The primary objective of asset management is to manage system assets in a way that meets long-term service requirements reliably and cost-effectively. Future technical assistance efforts will include asset management training and assistance.

The department will continue to measure capacity improvements by using *Quarterly Violations* and *SNC Summary,* the operator certification compliance report, PWS inspection reports, and by monitoring new system activity. The department encourages a collaborative effort with stakeholders to promote safe drinking water, public health, and quality of life.

Stakeholder involvement continues to be a key element in program success. DMF staff and the North Dakota Water and Pollution Control Conference (NDWPCC) offer annual operator training sessions to help PWSs achieve and maintain capacity. The NDWPCC also jointly sponsors an annual conference with the North Dakota Water Environment Association (NDWEA), the North Dakota Section of the American Water Works Association (NDAWWA), and the North Dakota Chapter of the American Public Works Association (NDCAPWA). The North Dakota Rural Water Systems Association (NDRWSA) and the North Dakota Environmental Health Association (NDEHA) also provide annual training sessions, conferences, and expositions.

The department continues to contract with the North Dakota State Plumbing Board, local/district health units, and technical assistance providers such as MAP and NDRWSA. These contracts provide support to the public water supply, facility inspections, sanitary survey follow-up visits, capacity development, and operator certification programs. The department anticipates follow-up contracts for these assistance programs to ensure the safety of North Dakota's drinking water.

To further promote stakeholder involvement, a copy of this report and the FY11 Capacity Development Program Report will be published in the *Official Bulletin*, the official publication of the NDWPCC. A news release notifying the public of the availability of the FY11 Governor's Report will also be provided to the local and regional news agencies. The Governor's Report, along with the *New Water System Capacity Assessment Manual* and the *North Dakota Existing*

Water System Capacity Strategy, are available on the department web site at: http://www.ndhealth.gov/MF/.

The department has demonstrated that both the new and existing water system capacity strategies are fully functional and continue to meet program goals. All reporting requirements have been met for fiscal years 2008-2011. Contracts for technical assistance have been renewed, and a proposal for follow-up assistance in FY12 is anticipated.

The department will continue to monitor existing systems, while providing consultation, training, and financial recommendations. Implementation of new SDWA regulations that affect capacity will be evaluated as needed. Any modifications resulting from these regulations will be detailed in future reports.

"*Water system capacity is the ability to plan for, achieve and maintain compliance with applicable drinking water standards. Capacity has three components: technical, managerial, and financial. Adequate capacity in all three areas is necessary for a system to have capacity."*